Appendix D:

Ordnance Systems -- Work Breakdown Structure and Definitions

D.1 -- Scope

This appendix provides the ordnance system work breakdown structure. Definitions for the complete round and launch system are provided in this appendix. Definitions for WBS elements common to the ordnance system and all other defense materiel items are given in Appendix H: Work Breakdown Structure Definitions, Common Elements.

D.2 -- Work Breakdown Structure Levels

Level 1	Level 2	Level 3
Ordnance System	Complete Round	Structure Payload Guidance and Control Fuze Safety/Arm Propulsion Integration, Assembly, Test and Checkout
	Launch System	Launcher Carriage Fire Control Ready Magazine Adapter Kits Integration, Assembly, Test and Checkout
	Systems Engineering/ Program Management	Development Test and Evaluation Operational Test and Evaluation Mock-ups
	System Test and Evaluation	Test and Evaluation Support Test Facilities
	Training	Equipment Services Facilities
	Data	Technical Publications Engineering Data Management Data

	Support Data Data Depository
Peculiar Support Equipment	Test and Measurement Equipment Support and Handling Equipment
Common Support Equipment	Test and Measurement Equipment Support and Handling Equipment
Operational/Site Activation	System Assembly, Installation and Checkout on Site Contractor Technical Support Site Construction Site/Ship/Vehicle Conversion
Industrial Facilities	Construction/Conversion/Expansion Equipment Acquisition or Modernization Maintenance (Industrial Facilities)
Initial Spares and Repair Parts	

D.3 -- Definitions

D.3.1 -- Ordnance System

The complex of equipment (hardware/software), data, services, and facilities required to develop and produce the capability for applying munitions to a target.

Includes:

- munitions (nuclear, biological, chemical, psychological, and pyrotechnic); means of launching or firing the munitions; represented by MK48 torpedo system, SNAKEYE bomb, Combined Effects Munitions, GATOR, Sensor Fuzed Weapon, 8-inch Howitzer, and .223 caliber ammunition

Excludes:

- aerospace guided missiles and land, sea, or air delivery vehicles

D.3.2 -- Complete Round

The components that are necessary for firing one shot, such as mines, bombs, rockets, torpedoes, naval guns, rifles, and artillery ammunition.

Includes:

- structural elements, warhead or payload, fuze, safety/arming devices, guidance equipment, and propellant/propulsion equipment

    •• (for artillery ammunition) projectile including structure, warhead, fuze, guidance and control (if applicable), safety/arming devices, propelling charge, and rocket motor (if applicable)

- design, development, and production of complete units (i.e., the prototype or operationally configured units which satisfy the requirements of their applicable specifications, regardless of end use)

- Sub-elements of the complete round element (D.3.2.1 -- D.3.2.7)

Note: ***All effort directly associated with the remaining level 3 WBS elements and the integration, assembly, test and checkout of these elements into the complete round is excluded.***

D.3.2.1 -- Structure

Portion of the complete round which carries the payload to the target; the basic housing of a bomb or rocket, casing of a projectile, body of a torpedo, or the tactical munitions dispenser containing submunitions.

Includes, for example:

- those structural devices which provide stability and control (i.e., fins, parachutes, anchors)

Excludes:

- all effort directly associated with the remaining level 3 WBS elements and the integration, assembly, test and checkout of these elements into the complete round.

D.3.2.2 -- Payload

The subsystem that contains the warhead and its support assemblies.

1) small arms ammunition

Payload may only be the warhead (i.e., a projectile assembly containing the kill mechanism of the round and its associated high explosives, chemicals, biological agents, nuclear devices, and pyrotechnics).

2) complex munitions containing submunitions

Payload subsystem may include guidance and control, fuze, safety/arm, and propulsion as defined in D.3.2.3, D.3.2.4, D.3.2.5, and D.3.2.6 of this appendix.

Note: ***All effort directly associated with the remaining level 3 WBS elements and the integration, assembly, test and checkout of these elements into the complete round is excluded.***

D.3.2.3 -- Guidance and Control

The complex of electronic equipment (hardware/software) which evaluates and correlates the path of the complete round with target information, and which performs the necessary functions to enable the payload to intercept the target.

Note: ***All effort directly associated with the remaining level 3 WBS elements and the integration, assembly, test and checkout of these elements into the complete round is excluded.***

D.3.2.4 -- Fuze

The mechanical or electronic device in the complete round designed to detonate or to set forces into action to detonate the charge or primer under desired conditions.

Note: ***All effort directly associated with the remaining level 3 WBS elements and the integration, assembly, test and checkout of these elements into the complete round is excluded.***

D.3.2.5 -- Safety/Arm

The device in the complete round which controls the capability of initiating the explosive sequence (e.g., mechanical, hydrostatic, inertial, counters, and timers).

Note: ***All effort directly associated with the remaining level 3 WBS elements and the integration, assembly, test and checkout of these elements into the complete round is excluded.***

D.3.2.6 -- Propulsion

The chemical, mechanical, or electrical devices (such as explosive powder charges, chemical precision initiation charges, electric power modules, and rocket motors) which provide the forces to transport the complete round from the launch position to the target.

Includes, for example: (for artillery ammunition) cartridge case, if applicable, primer, and explosive charge

Note: ***All effort directly associated with the remaining level 3 WBS elements and the integration, assembly, test and checkout of these elements into the complete round is excluded.***

D.3.2.7 -- Integration, Assembly, Test, and Checkout

The integration, assembly, test, and checkout element includes all efforts as identified in Appendix H: Work Breakdown Structure Definitions, Common Elements, to provide a complete round.

D.3.3 -- Launch System

The equipment (hardware/software) for controlling or sending forth the munitions on a desired course or trajectory -- the ordnance system less the complete round.

Includes, for example:

- rifles, artillery pieces, naval guns, mortar cannons, machine guns, and the equipment for launching torpedoes and rockets or dropping bombs (e.g., the launcher, fire control equipment, and the ready magazine).
- all effort associated with the design, development, and production of complete units (i.e., the prototype or operationally configured units which satisfy the requirements of their applicable specifications, regardless of end use).

D.3.3.1 -- Launcher

The structural device designed to support and hold munitions in position for firing or release.

Includes, for example:

- suspension and release systems, rail, rocket pods, mine racks or dispensers, and torpedo tubes
- (for guns and artillery) tubes, recoil assemblies, breech mechanisms, mounts, and rifle stocks

D.3.3.2 -- Carriage

The primary equipment (hardware/software) which serves as a platform to accommodate the other level 3 elements and provides mobility to the complete launch system (e.g., T-frame, hull/chassis, wheels, tires, tubes, brakes, hydraulics, and secondary power batteries/generators), which are an integral part of the carriage itself and not directly a part of other level 3 elements.

D.3.3.3 -- Fire Control

The equipment (hardware/software) for controlling the direction, volume, and time of fire or release of munitions through the use of electrical, electronic, optical, or mechanical systems, devices or aids.

Includes, for example:

- (for rifles and small arms) sighting devices and trigger mechanisms

- (for artillery, naval guns, and heavy mortars) aiming mechanisms in traverse and elevation, radar and other sensors, computers and other equipment for performing fire control computations

- (for air-dropped munitions) gunsights, intervalometers, and other sensor and computational devices for controlling the release of the munitions

- (for torpedoes) sonar and other sensors, computers, control consoles, and devices for presetting torpedo speed and direction

D.3.3.4 -- Ready Magazine

The structure or compartment for storing ammunition or explosives in a ready-for-use condition or position (e.g., the part of a gun or firearm which holds the ammunition ready for chambering and feed mechanisms for placing the ammunition in a position ready for chambering).

D.3.3.5 -- Adapter Kits

The equipment (hardware/software) for adapting the launch system to particular applications (e.g., vehicle adapter kits for adaptation to different aircraft models, kits for backpacking, etc.).

D.3.3.6 -- Integration, Assembly, Test and Checkout

The integration, assembly, test and checkout element includes all efforts as identified in Appendix H: Work Breakdown Structure Definitions, Common Elements, to provide a complete launch system.

D.3.4 -- Common WBS Elements

Definitions for common WBS elements applicable to the ordnance system and all other defense materiel items are in Appendix H: Work Breakdown Structure Definitions, Common Elements.